Unstirred Water Baths
SUB Aqua Plus,
JB Aqua Plus & SBB
Aqua Plus

Operating Manual

EN

FR

DE

IT

ES

Grant Instruments, based near Cambridge, England, is an independent, privately owned company, founded in 1951 by Peter Ward and Cecil Chapman.

Grant is a world leader in the manufacture and design of equipment for sample preparation, scientific analysis, data acquisition and data analysis providing solutions to the global scientific and industrial markets.

Standards Compliance and Quality

Grants' brand and reputation are based around quality, reliability and accuracy. We ensure our products stringently meet all necessary international safety standards.

We pay particular attention to the safety testing of products and remain at the forefront of the product safety standard for laboratory equipment IEC 61010-1. The company is committed to operating its safety test laboratory in accordance with the requirements of ISO 17025.

Grant operates a Quality Management System that complies with the requirements of BS EN ISO 9001:2008.

Beyond compliance to the standard, Grant is committed to continually improving in everything we do; with particular emphasis on understanding what matters to our customers and suppliers, and designing our systems and work to meet their needs.

If you have any feedback on Grant's products or services we would like to hear from you. Please send all feedback to:

Quality Manager
Grant Instruments (Cambridge) Ltd
Shepreth
Cambridgeshire
SG8 6GB
UK

Tel: +44 (0) 1763 260 811
Fax: +44 (0) 1763 262 410
E-mail: feedback@grantinstruments.com

Contents

1.0 Use of products

The following products are covered by this operating manual:
- JB Aqua (2, 2 Shallow, 5, 12, 18, 26 & Dual) Plus
- SUB Aqua (2, 2 Shallow, 5, 12, 18, 26, 34 & Dual) Plus
- SBB Aqua (5, 12, 18 & 26) Plus

The products listed above are a general purpose series of thermostatically controlled unstirred water baths designed for indoor laboratory use by a professional user.

2.0 How to use this operating manual

This operating manual will allow you to unpack, set-up and operate this water bath correctly and safely. Important safety information, symbols and warnings are listed below and should be read carefully. Section 4 gives information about how to unpack and install the product correctly. Section 5 gives generic operating information in the first section followed by specific operating details for the JB Aqua Plus, SUB Aqua Plus and SBB Aqua Plus baths respectively. Product technical specifications and tips are provided in the sections 6 and 7. The warranty for this water bath is detailed in section 8 but to register you should return the warranty card or complete the on-line registration form at www.grantinstruments.com.

If there is a technical matter that this operating manual does not address, or any other question concerning this product please contact Grant Instruments or your local distributor who will be able to provide any additional information.

A laminated quick start guide is provided with the SUB Aqua Plus and JB Aqua Plus water baths as quick reference guide but should not be used until the full user manual has been read.

3.0 Safety information

3.1 Safety compliance

Grant water baths meet the requirements of international safety standard IEC 61010: Safety requirements for electrical equipment for measurement, control, and laboratory use. They also comply with the equivalent national standards including:

      EN 61010-2-010
      UL 61010A-2-010
      CAN/CSA-C22.2 NO. 61010-2-010-04.

3.2 Safety symbols

The symbols below are marked on the equipment to indicate:

Caution: Surfaces and water can be hot during and after use

Read this manual before using the bath

Important safety warning

3.3 Safety warnings

Read the whole of these instructions. Safety may be impaired if they are not followed.

If the equipment has been transported or stored in cold or humid conditions, condensation may form inside it. If that could have happened, allow time (at least 2 hours at room temperature) for the condensation to evaporate before using the equipment.

Do not use the bath to heat any material that could cause a fire or any other Do not use the equipment in an area where there are aggressive or explosive chemical mixtures.kind of hazard.

If a potentially hazardous liquid is spilt onto the equipment, disconnect it from the power supply and have it checked by a competent person. It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilt on the equipment.

Before emptying a bath, allow the water temperature to fall to a safe level. For 18 and 26 litre baths, empty the bath before moving it.

The bath is for use only with water as the bath liquid. Make sure that it cannot become contaminated by other liquids. We recommend the use of de-ionised water.

Before first switching on the bath please remember to fill the bath with water. Switching the bath on dry will damage the heater and could invalidate the product warranty.

EN

4.0 Operating instructions

4.1 Unpacking instructions

Standard equipment includes:
- Thermostatic bath
- Mains cord with plug
- Gabled polycarbonate lid (all baths except SUB Aqua 34 Plus)
- Polycarbonate base tray(s) (SBB Aqua Plus baths have a metal base tray)
- Operating manual
- Quick start guide (JB Aqua Plus and SUB Aqua Plus baths only)

Remove packing materials carefully, and retain them for future shipment or storage of the equipment.

4.2 Assembly of the equipment and components

The water bath has three main components, the bath, the lid and the base tray. The base tray fits into the bath with the feet downward so that it creates a gap between the bottom of the tank and the tray. The lid should only be lifted by the handle provided as other parts can become hot during use. It also has a vent/thermometer hole - this hole should not be sealed as pressure could build up inside the bath.

4.3 Installation

Place the water bath on a level, non-combustible surface. Ensure that the mains plug and the switch are easily accessible.

4.4 Electrical supply

Check that the supply voltage marked on the serial number label, and the type of mains plug, are correct for your mains supply outlet, which must have a ground connector.

To disconnect the equipment from the mains supply, remove the mains plug from the mains supply outlet.

5.0 Operating procedures

5.1 Operation

5.1.1 Water level

Ensure that the baths are used with the appropriate base tray and that the water always covers the tray. The maximum water level should not be higher than the swage line around the top of the bath or around 2.5cm from the top. These criteria apply both when there are no vessels in the bath and with the maximum contents.

Avoid letting the bath run dry. In the event this does happen, the safety cutout will trip and disconnect the heater. If this does happen, unplug the bath and have the cut-out reset by a competent person.

5.1.2 Operation above 60°C

The lid must be used above 60°C to maintain proper temperature control and to ensure that the water temperature reaches the set point

The lid will also prevent excessive evaporation that requires the bath to be filled more often and will save energy.

5.1.3 Flat bottomed vessels

Do not place flat-bottomed vessels or other objects directly on the bottom of the tank. Always use the base tray. This avoids possible damage to the heater mounted under the tank. The base tray also improves temperature control.

5.1.4 Emptying the baths

Before emptying any bath allow the water temperature to fall to a safe level and take reasonable precautions to prevent accidental spillage.

Drain taps are included in 12L and above JB Aqua Plus and SUB Aqua Plus baths to allow convenient emptying. These baths should be emptied using the drain tap prior to moving.

To empty the bath using the drain tap, push the supplied drain insert into the drain tap (see picture below). Note that the water will begin to empty as soon as the drain insert is fully engaged. A length of hose can be added to the barbed end of the drain insert if required.

5.2   Using the JB Aqua Plus

5.2.1   Bath controls

5.2.2   Indicator lamps

There are three indicator lights:
1. Power on (green).
2. Heater on (orange). Marked ⧢⧢ .
3. Warning (orange). Marked ! indicates that the temperature is being controlled by the sample protection thermostat.

5.2.3   Setting the control temperature (ₒC)

The water temperature of the bath can be set using the larger temperature control knob.

1. Turn the knob of the sample protection thermostat fully to maximum.
2. Turn the knob of the temperature control to the desired temperature.
3. Turn on the unit using the switch on the rear of the bath and wait until the temperature has stabilised.
4. Measure the temperature with a thermometer and adjust the temperature control knob if necessary to obtain the desired temperature.
5. Set the sample protection thermostat as detailed below if needed.

5.2.4 Setting the sample protection thermostat

The bath is fitted with an adjustable sample protection thermostat to protect the sample. This device is not a safety feature. The sample protection thermostat can be set to be a few degrees above the bath set temperature.

1. Wait for the bath to stabilise at the correct temperature (can be checked with external thermometer if needed).
2. Turn the sample protection thermostat control knob slowly anti-clockwise until an audible 'click' is heard (and the heater lamp goes off if it was on) and then turn it clockwise until another audible 'click' is heard.

In the unlikely event of failure of the primary temperature control system, the sample protection thermostat will maintain the water in the bath at a temperature a few degrees above the control temperature. This will be indicated by the two orange lamps cycling on and off. If this happens, first check that the sample protection thermostat is not set to a lower temperature than the primary control system. If that is **not** the reason, the main control thermostat is not operating correctly. The bath can continue to be used without compromising the safety of persons or the surroundings until current work is completed. However, it is recommended to have the bath checked by a competent person as soon as conveniently possible.

5.2.5 Calibration of the temperature control knob

If the control temperature does not match the actual water temperature measured with a thermometer then a calibration of the control knob is required.

1. Carefully remove the temperature control knob marker to expose the adjustment screw.
2. Use the 1.5mm Allen key supplied with the bath to loosen the adjustment screw so that the knob can rotate on the shaft.
3. Set the knob at the bath temperature as measured by the thermometer then tighten the adjustment screw.
4. Carefully replace the temperature control knob marker.

EN

5.3 Using the SUB Aqua Plus

5.3.1 Bath controls
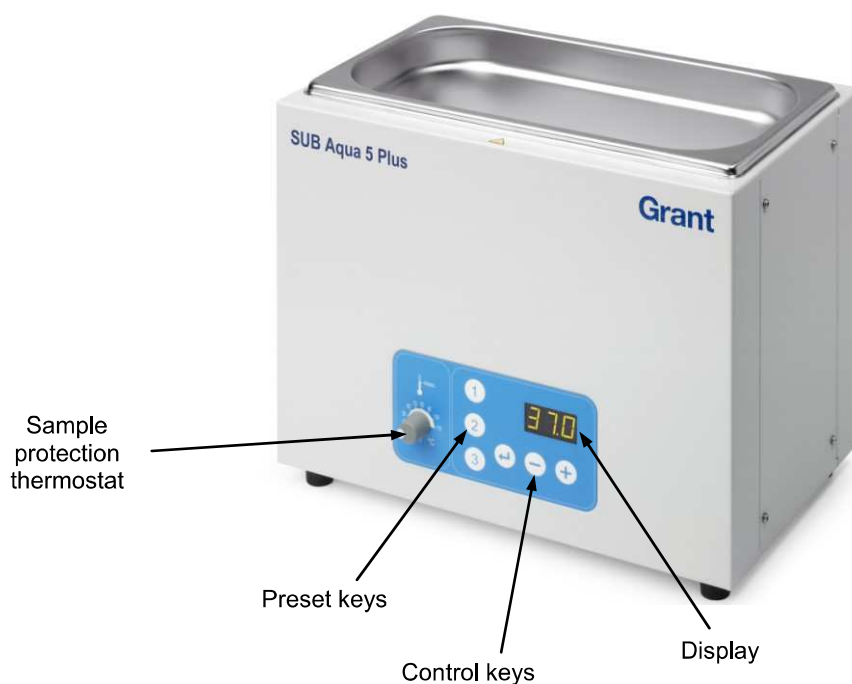
5.3.2 Setting the control temperature (◻𝐶)

The water temperature of the bath can be set using the control keys.

1. Turn the knob of the sample protection thermostat to maximum.
2. Whilst the display is showing the bath temperature press either the '+' or '-' key. This will cause the display to flash indicating that it can be set.
3. Use the '+' or '-' to set the desired temperature.
   If no key is pressed for 4 seconds then the display will revert back to showing the bath temperature and the set temperature will remain at its original value.
4. Press the enter key to store the requested value and the display will revert to showing the bath temperature.
   The water temperature will change to the new set value - during heating or cooling to the set point the last digit will change to a rising or falling bar until the actual temperature is within one degree of the set value
5. When the temperature has stabilised measure the temperature with a thermometer and adjust the set temperature again if necessary.
6. Set the sample protection thermostat as detailed below if needed.

5.3.3 Setting the sample protection thermostat

The bath is fitted with an adjustable sample protection thermostat to protect the sample. This device is not a safety feature. The sample protection thermostat can be set to be a few degrees above the bath set temperature.

1. Turn the knob of the sample protection thermostat to maximum.
2. Set the control temperature to 2°C above the desired operating temperature and wait for the temperature to stabilise.
3. Turn the knob of the sample protection thermostat slowly anti-clockwise until a click is heard and '*Otc*' is displayed.
   The audible alarm will sound continuously to warn you that the bath is controlling using the sample protection thermostat.
4. Re-set the control temperature to the desired temperature using the '+' and '-' keys.
   The audible alarm will sound continuously until the primary control system is re-activated.

In the unlikely event of failure of the primary temperature control system, the sample protection thermostat will maintain the water in the bath at a temperature a few degrees above the set temperature and with greater fluctuations. The display will cycle between '*Otc*' and the actual bath temperature and the audible alarm will sound intermittently. If this happens, first check that the sample protection thermostat is not set to a lower temperature than the primary control system. If that is **not** the reason, the bath can continue to be used without compromising the safety of persons or the surroundings until current work is completed. However, it is recommended to have the bath checked by a competent person as soon as conveniently possible.

5.3.4 Configuring a bath preset

Each bath contains three presets which can be configured to different set temperatures to allow the bath to be conveniently run at frequently used temperatures. Use the method below to configure preset 1; other presets can be set in a similar manner.

1. Press preset key '1' to activate the preset. The display will flash '*Pr□*' and then the current preset set temperature.
2. Use the '+' or '-' to set the desired temperature.
   If no key is pressed for 8 seconds then the display will revert back to showing the bath temperature and the set temperature will remain at its original value.
3. Press preset key '1' to save the preset temperature.

5.3.5 Running a bath preset

To run bath preset 1:
1. Press preset key '1' to activate the preset. The display will flash '*Pr 1*' and then the current preset set temperature.
2. Press the enter key to run the preset; the bath will heat (or cool) to the requested temperature.

5.3.6 Setting a countdown period (*PEr*)

The bath includes a countdown timer in minutes which triggers an audible alarm on completion.

1. Press the enter key to show '*oC*'.
2. Use the '+' or '-' keys to navigate to '*PEr*'.
3. Press 'enter' key to select the countdown timer; the display will flash '*0*'.
4. Use the '+' or '-' keys to set the countdown timer in minutes.
5. Press the enter key to confirm the countdown timer.
   If a timer has been set then a dot in the bottom right corner of the display will flash during the countdown.

When the countdown timer reaches zero the audible alarm will sound and the display will alternate between the water temperature and zero. The alarm can be accepted by pressing the enter key.

5.3.7 Cancelling the timer

The countdown timer can be cancelled by using the instructions above but using the '-' key to reset the value to zero. Use the enter key to confirm that you wish to clear the timer.

5.3.8 Locking & unlocking the control panel

The keys on the front panel can be locked to prevent settings being accidentally changed or modified. The front panel will display '*LoC*' if any buttons are pressed and the control panel is locked.

The control panel can be locked by pressing the enter and '+' keys simultaneously for at least 3 seconds. The display will show '*LoC*' to confirm that the keypad has locked. The control panel can be unlocked by pressing the enter and '-' keys simultaneously for at least 3 seconds. The display will show '*OPr*' to confirm that the keypad is operational.

5.3.9 Single point calibration (*SPC*)

The display of set temperature and actual temperature is accurate to within 1°C at 37°C but may be up to 5°C out at maximum temperature. Single point calibration allows the bath to be adjusted to be accurate to ±0.1°C at a single temperature.

1. Set the bath to the calibration temperature and allow the bath to stabilise for 20 minutes, indicated by the display not fluctuating by more than 0.2°C.
2. Measure the temperature of the water with a calibrated thermometer and make a note of this reading.
3. Press the enter key to enter the menu. The display will show '*oC*'.
4. Use the '+' or '-' keys to navigate to '*SPC*'.
5. Press enter key to select calibration; the display will flash with the current offset value.
6. Use the '+' or '-' keys to set an offset correction value (positive or negative) as measured by the thermometer.
   If no key is pressed for 8 seconds then the display will revert back to showing the bath temperature and the calibration will remain at its original value.
7. Press the enter key to store the new corrected set temperature.
   The display will show the corrected bath temperature.

5.3.10 Twin point calibration (*tPC*)

The bath can also be calibrated using a twin point method to give you a linear correction over the full temperature range. The process consists of three steps:
1. Set low point calibration value.
2. Set high point calibration value.
3. Confirm calibration settings.

The bath is not calibrated until all three steps have been completed. The greater the difference between the low and high points, the better the calibration will be.

Low calibration point (*LCP*)
1. Set the bath to a temperature between 20°C and 40°C and allow the bath to stabilise for 20 minutes, indicated by the display not fluctuating by more than 0.2°C.
2. Measure the temperature of the water with a calibrated thermometer and make a note of this reading.
3. Press the enter key. The display will show '*oC*'.
4. Use the '+' or '-' keys to navigate to '*tPC*' and press the enter key.
5. Use the '+' or '-' keys to navigate to '*LCP*' and press the enter key.
6. Using the '+' or '-' keys adjust the display until the value displayed is the same as the reading taken earlier.
7. Press the enter key to confirm the value and the bath will display '*LCP*'. Wait for the bath to return to normal mode.

High calibration point (*HCP*)
1. Set the bath to a temperature between 70°C and 90°C, allow the bath to stabilise, for 20 mins, indicated by the display not fluctuating by more than 0.2°C.
2. Measure the temperature of the water with a calibrated thermometer and make a note of this reading.
3. Press the enter key. The display will show '*oC*'.
4. Use the '+' or '-' keys to navigate to '*tPC*' and press the enter key.
5. Use the '+' or '-' keys to navigate to '*HCP*' and press the enter key.
6. Using the '+' or '-' keys adjust the display until the value display is the same as the reading taken earlier.
7. Press the enter key to confirm the value and the bath will display '*HCP*'. Wait for the bath to return to normal mode.

Setting the calibration (*SEt*)
1. Press the enter key. The display will show '*oC*'.
2. Use the '+' or '-' keys to navigate to '*tPC*' and press the enter key.
3. Use the '+' or '-' keys to navigate to '*SEt*' and press the enter key to apply the new low and high calibration values.
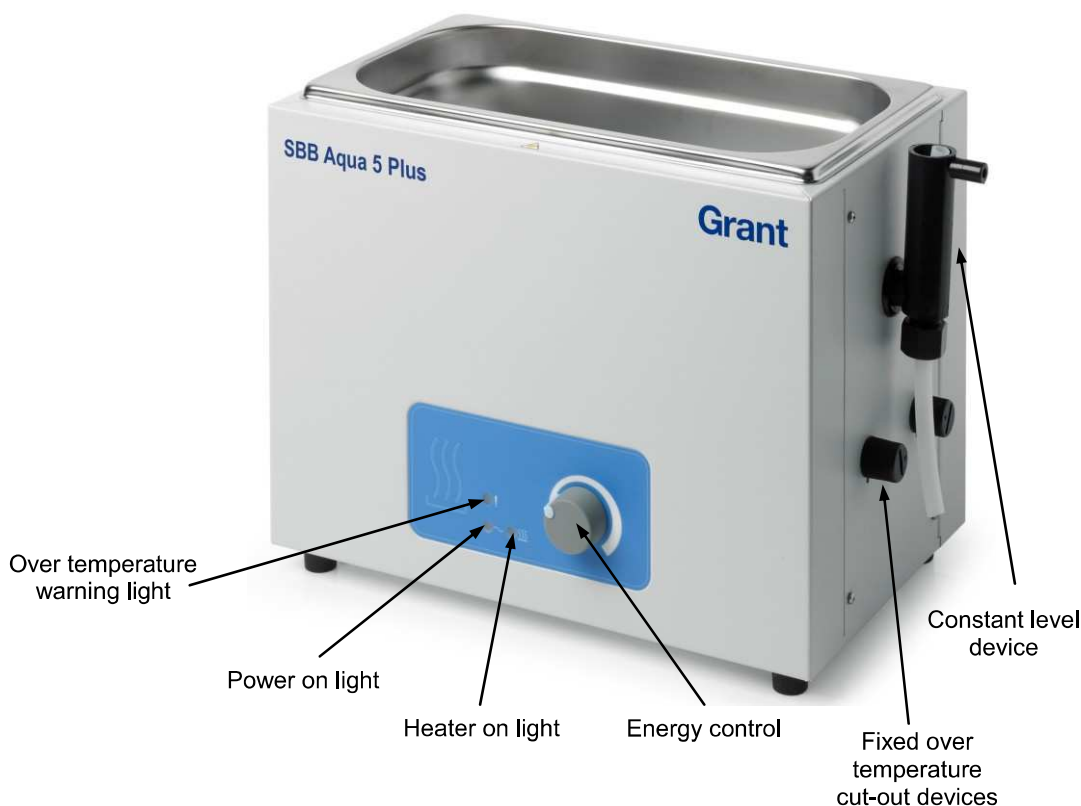   *The bath is now calibrated and the display will read the corrected value.*

Restoring factory calibration (*rFC*)
1. Press the enter key. The display will show '*oC*'.
2. Use the '+' or '-' keys to navigate to '*tPC*' and press the enter key.
3. Use the '+' or '-' keys to navigate to '*rFC*' and press the enter key to restore the factory settings.

5.4 Using the SBB Aqua Plus

5.4.1 Bath controls

5.4.2 Indicator lamps

There are three indicator lights:
1. Power on (green).
2. Heater on (orange). Marked $\approx$.
3. Warning (orange). Marked ! indicates that one or both over temperature cut outs have tripped.

5.4.3 Setting a controlled boil

The bath can be set to boil continuously.

1. Turn the energy control knob to the maximum position.
2. When the water is boiling, reduce the power by turning the knob to a position that maintains the boiling at the desired level.

5.4.4 Setting the constant level device

A constant level device is fitted to the bath to maintain the required water level. To use the constant level device, connect the inlet pipe (black) to a water supply and the outlet pipe (white) to a drain. The water level can be adjusted by loosening the lower black nut and raising or lowering the white tube. The position of the top of the tube determines the water level. Re-tighten the black nut.

After filling the bath adjust the water flow rate to the minimum which maintains a constant water level when the water is boiling. Check that any relevant local water supply regulations are complied with if connecting to a mains water supply.

5.4.5 Resetting the over temperature cut-out devices

Two fixed over temperature cut-outs prevent the heater from overheating in the case of a low water level. The reset buttons for the over temperature cut-outs are on the side panel and can be reset by removing the protective black cap and pressing the red button in.

The over temperature cut-outs may activate during normal operation. If this is the case then they can be reset and the bath can continue to be used without compromising the safety of persons or the surroundings. However, if the cut-outs are persistently activated then it is recommended to have the bath checked by a competent person as soon as possible.

6.0 Technical specifications

Operating conditions

Ambient Temperature	5 to 40°C
Maximum relative humidity	80% R.H. in room temperatures up to 31°C decreasing linearly to 50 % R.H. at 40°C
Altitude above sea level	Up to 2,000 m (6,500 ft)
Operating Enviroment	Indoor use only

Electrical details

Mains supply: 230V @ 50/60 Hz or 120V @ 50/60 Hz
Polution degree: 2
Installation Category: II

Note: Mains supply voltage fluctuations are not to exceed ±10% of the nominal supply voltage

Models	Capacity (L)	Current Rating (A)	
		120V	230V
SUB Aqua 2 Plus	2	1.0	0.5
SUB Aqua 2S Plus	2	2.6	1.3
SUB Aqua 5 Plus	5	2.6	1.3
SUB Aqua 12 Plus	12	5.3	2.7
SUB Aqua 18 Plus	18	7.9	5.3
SUB Aqua 26 Plus	26	7.9	5.3
SUB Aqua Dual Plus	5 & 12	7.9	4.0
SUB Aqua 34 Plus	34	10.5	8.5
JB Aqua 2 Plus	2	1.0	0.5
JB Aqua 2S Plus	2	2.8	1.3
JB Aqua 5 Plus	5	2.8	1.3
JB Aqua 12 Plus	12	5.6	2.7
JB Aqua 18 Plus	18	8.4	5.3
JB Aqua 26 Plus	26	8.4	5.3
JB Aqua Dual Plus	5 & 12	8.2	4.0

Models	Capacity (L)	Current Rating (A)	
		120V	**230V**
SBB Aqua 5 Plus	5	6	11
SBB Aqua 12 Plus	12	7	11
SBB Aqua 18 Plus	18	9	11
SBB Aqua 26 Plus	26	9	11

SUB Aqua Plus bath performance

Temperature range	5°C above ambient to 99°C
Display (also used for setting)	10.0 to 99.0°C in steps of 0.1°C
Temperature stability at 37°C	± 0.2°C

JB Aqua Plus bath performance

Temperature range	5°C above ambient to 98°C
Setting scale	10 to 98°C in 2°C graduations
Temperature stability at 37°C	± 1.0°C

SBB Aqua Plus bath performance

Temperature range	100°C only

7.0   Technical Tips

7.1   Which water should you use in your bath?

For the long-term reliability of water baths it is important to use oxygenated water that is free from ions and minerals that can cause corrosion of stainless steel. We recommend the use of distilled water and de-ionised water from modern ion exchange systems that do not use salt back flushing to regenerate the ion-exchange cartridges.

Stainless steel is protected from corrosion by a layer of chromium oxide. If the layer is damaged, oxygen present in water can reform the oxide layer. If the water is still or de-oxygenated, and the oxide layer is damaged, ions can corrode the stainless steel tank. If a water bath has been unused for some time, or water boiled, we recommend changing to fresh distilled water or correct de-ionised water.

Water normally contains calcium or magnesium ions. De-ionised water has most ions removed as indicated by its conductivity level; the purer the water the lower the conductivity. It is important to use only de-ionised water from an ion exchange system with replaceable cartridges. Do not use de-ionised water generated from an ion-exchange system that incorporates a salt back-flush system to regenerate the ion-exchange resin as this can leave sodium ions that are very corrosive to stainless steel.

7.2   How to prevent rust in water baths

Most Grant tanks, as well as immersed parts, are made from type 304 stainless steel, an extremely versatile general purpose grade of stainless steel. It is the excellent forming characteristic that has made this grade dominant in the manufacture of laboratory and industrial water baths, as well as domestic sinks and saucepans. Type 304 stainless steel is highly suitable for applications where hygiene is important; it exhibits good heat resistance and excellent resistance to corrosion.

However, despite resistance to general surface corrosion, stainless steel is susceptible to specific types of corrosion, in particular pitting (small pin hole style corrosion) and stress corrosion cracking. It can also undergo general corrosion in specific environments, such as one containing hydrochloric or sulphuric acids.

Stainless steel is protected by its high content of alloying elements, primarily chromium and nickel. Chromium is the most important with respect to corrosion resistance, although the nickel assists in allowing the chromium to do its job. The chromium forms an oxide layer on the surface of the steel, which inhibits further oxidation. This layer adheres extremely well to the metal substrate, but it is essential that it remains intact, and must be protected from various forms of damage.

If the surface chromium oxide layer becomes damaged, oxygen present in water can partially reform the oxide layer, so it is advisable to ensure that water is always fresh and well oxygenated. Baths that will be out of use for an extended period should be emptied, and all moisture should be wiped from the bottom of the tank.

In some cases a brown layer may appear on the surface of a stainless steel tank. In most of these cases this is not rust, but it may be a surface deposit of minerals from the local water supply, or ferrous particles or salts that have fallen into the tank. These surface deposits can usually be removed by using a household cleaner such as Duraglit or Silvo metal polish.

7.3 How to prevent algae and bacteria?

Water baths provide the ideal environment for the growth of micro-organisms. If left uncontrolled the growth of these organisms can result in a range of serious problems and health risks from pathogenic bacteria.

The growth of algae on the surface of parts will cause biofouling which can reduce performance.

Micro-organisms that produce acidic metabolic by-products can cause bio-corrosion by depolarisation of metal surfaces.

There are a number of biocides available on the market.

8.0 Warranty information

When used in laboratory conditions according to this manual, this product is guaranteed for THREE YEARS against faulty materials or workmanship.

Extended warranty for years four and five can be purchased by contacting our sales department at labsales@grantinstruments.com.

EN

9.0   Maintenance and service

No routine maintenance is required except for cleaning. There are no user serviceable parts inside the unit.

9.1   Cleaning

Clean the outside of the equipment with a damp cloth, using water only. Do not use chemical cleaning agents. Before using any other cleaning or decontamination method, check with Grant Instruments or your local representative to make sure that the proposed method will not damage the equipment. Scale on immersed parts can be removed using chemical de-scaling products designed for use on kitchen equipment that have metal parts. De-scaling products may be toxic and manufacturer's instructions should always be followed.

9.2   Fuses

Fuses are Littelfuse 3AB 314 series, fast-acting, high breaking current (max breaking current at least 750 A); dimensions are 1.25 inch long, 0.25 inch diameter. Replace fuses only by the same type and rating (250V).

Models	Fuse Rating (A)	
	120V	230V
SUB Aqua 2 Plus	5	5
SUB Aqua 2S Plus	5	5
SUB Aqua 5 Plus	5	5
SUB Aqua 12 Plus	10	10
SUB Aqua 18 Plus	15	15
SUB Aqua 26 Plus	15	15
SUB Aqua Dual Plus	15	15
SUB Aqua 34 Plus	15	15
JB Aqua 2 Plus	5	5
JB Aqua 2S Plus	5	5
JB Aqua 5 Plus	5	5
JB Aqua 12 Plus	10	10
JB Aqua 18 Plus	15	15
JB Aqua 26 Plus	15	15
JB Aqua Dual Plus	15	15
SBB Aqua 5 Plus	15	15
SBB Aqua 12 Plus	15	15
SBB Aqua 18 Plus	15	15
SBB Aqua 26 Plus	15	15

9.2.1   Replacing fuses on JB Aqua Plus & SUB Aqua Plus (except SUB Aqua 34 Plus)

Disconnect the unit from the power supply
1. Remove the mains lead from the socket at the back of the bath.
2. Press down the fuse drawer catch and pull out the fuse drawer. Check the fuse(s) and replace if necessary using the specified fuse type and rating.
3. Push back the drawer and replace the mains lead.

9.2.2   Replacing fuses on SBB Aqua Plus & SUB Aqua 34 Plus

Disconnect the unit from the power supply
1. Remove the mains lead from the socket at the back of the bath.
2. Carefully use a screwdriver to unscrew the fuse cap from the holder. Check the fuse(s) and replace if necessary using the specified fuse type and rating. CAUTION: the fuse should be placed in the cap, do not attempt to put the fuse directly in the holder.
3. Carefully replace the fuse cap in the holder and replace the mains lead.

9.2.3   Routine safety tests

If routine tests are to be made, we recommend a test of the integrity of the protective earth conductor and an insulation test at 500 V DC. Routine flash tests are **not** recommended for any electrical equipment, because repeated high voltage tests degrade insulation materials.

9.3   Service

If service is required, switch off the unit and contact Grant Instruments or your local representative for repairs.

Service Department
Grant Instruments (Cambridge) Ltd
Shepreth
Cambridgeshire
SG8 6GB
UK

Tel: +44 (0) 1763 260 811
Fax: +44 (0) 1763 262 410
E-mail: labservice@grantinstruments.com

10.0 Optional accessories

A full listing of product accessories and options is available in the Grant Scientific Reference Catalogue (a copy of which is available upon request) and on the Grant website at www.grantinstruments.com.

11.0 Troubleshooting

No lights or display - check power source, mains switch and fuses.
Water is not reaching temperature - check that the set temperature and the sample protection thermostat are set correctly.
Display shows 'OtC' - check that the sample protection thermostat is set correctly.
Display temperature is different from actual temperature - use single (SPC) or twin point calibration (tPC) to correct this.
There is no last digit on the display - allow the bath to stabilise.
Temperature of water fluctuates - check that the sample protection thermostat is set correctly.

12.0 Contact Grant Instruments

At Grant we are continuously trying to improve the performance we offer our customers. If you have any feedback on Grant's products or services we would like to hear from you. Please send all feedback to:

Quality Manager
Grant Instruments (Cambridge) Ltd
Shepreth
Cambridgeshire
SG8 6GB
UK

Tel: +44 (0) 1763 260 811
Fax: +44 (0) 1763 262 410
E-mail: feedback@grantinstruments.com

13.0 Compliance

WEEE directive

Grant Instruments complies fully with the Waste Electrical & Electronic Equipment (WEEE) regulations 2006. We are a member of the B2B compliance scheme (Scheme Approval Number WEE/MP3338PT/SCH), which handle our WEEE obligations on our behalf. Grant Instruments have been issued with a unique registration number by the Environmental Agency, this reference number is WEE/GA0048TZ.

For information regarding WEEE collections in the UK please contact our B2B Compliance Scheme directly on 01691 676 124.
For other countries please contact your equipment supplier.

For General WEEE information please visit: www.b2bcompliance.org.uk

RoHS directive

All the products covered by this manual comply with the requirements of the RoHS Directive (Directive 2002/95/EC).

Electrical safety and electromagnetic compatibility

All the products covered by this manual comply with the requirements of the Low Voltage Directive (2006/95/EC) for electrical safety and the EMC directive (2004/108/EC) for electromagnetic compatibility. See the Declaration of Conformity on the inside back page

.

Notes

EN